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(54) Liquid transfer apparatus.

(57) It is well known to dispense quantities of liquid on to test elements using pipettes. However, due to peculiar properties of many body liquids, great care is needed to ensure that accurate and reproducible amounts of such liquids are dispensed. Disclosed herein is dispensing apparatus which can be used in combination with standard pipettes to allow accurate predetermined amounts of liquid to be dispensed. The dispensing apparatus includes a liquid transfer unit (20) which comprises a frame (22) having a liquid inlet aperture (30) connected by a first passageway (34, 35) to a dispensing aperture (28), an

air vent aperture (42) connected by a second passageway (44) which extends toward the first passageway (34, 35), and a valve (50, 52, 54, 56) interposed between the two passageways (34, 35, 44). The liquid aperture (30) is shaped to receive a number of conventional pipettes. The valve (50, 52, 54, 56) allows continuous liquid flow along the first passageway (34, 35) when in a first position, or continuous air flow along the second passageway (44) and into part of the first passageway (35) when in a second position to effect dispensing of the liquid.

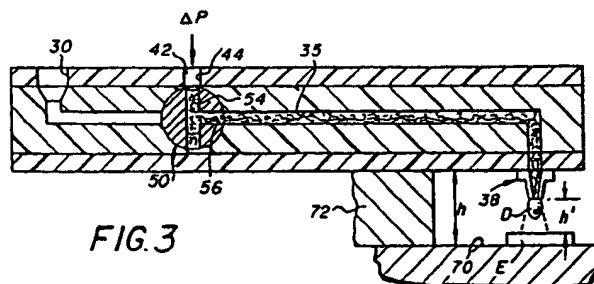


FIG. 3



European  
Patent Office

# EUROPEAN SEARCH REPORT

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EP 90 20 3333

## DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-4 052 320 (R.F. JAKUBOWICZ) * Column 4, lines 38-59; column 6, lines 9-27; column 8, lines 2-18; figures 1-3 *	1,7	B 01 L 11/00 G 01 N 1/00 G 01 F 11/28
A	EP-A-0 301 743 (EASTMAN KODAK CO.) * Column 4, line 55 - column 5, line 18; claims 8-9; figure 4 *	1	
A	PATENT ABSTRACTS OF JAPAN, vol. 6, no. 171 (P-140), 4th September 1982; & JP-A-57 088 340 (ESUTETSUKU K.K.) 02-06-1982	2,7	
A,D	US-A-4 452 899 (W.D. ALSTON) * Figures 1,3,4; column 5, lines 38-45,3-8 *	1	
A	EP-A-0 023 157 (EASTMAN KODAK CO.) * Figures 1-3; page 4, line 34 - page 5, line 29; page 7, lines 19-24 *	1	
A	US-A-4 676 274 (J.F. BROWN) * Figure 17; column 11, lines 45-65 *	2	
A	US-A-3 757 981 (R.J. HARRIS) * Figures 1-4 *	2,4	TECHNICAL FIELDS SEARCHED (Int. Cl.5)  G 01 N B 01 L
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 23 July 91	Examiner HOCQUET A.P.E.
<div><div><b>CATEGORY OF CITED DOCUMENTS</b> X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention</div><div>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons  &amp;: member of the same patent family, corresponding document</div></div>			